

STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 Lab ID: N00004362

Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004362001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name:

Project Site No.:

RAW

Station No.:

Date/Time Collected:

04/06/2009 10:05

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

Sample EFO: Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

Date/Time Received:

TDEC-DWS
TDEC-DWS

Priority Date:

04/06/2009 12:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	54	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name:

Project Site No.:

FINISH

Station No.:

Date/Time Collected:

04/06/2009 10:10

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: TDEC-DWS **TDEC-DWS**

Priority Date:

Date/Time Received:

04/06/2009

12:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	52	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name:

Project Site No.:

RAW

Station No.:

Date/Time Collected:

04/06/2009 10:45

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

04/06/2009 12:40

Received By:

L Barrociere

TEST: Alkalinity, Total	ME.	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	83	mg/L	3.8	10	P Leathers	4/7/2009

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other: Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	61	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name:

Project Site No.:

FINISH

Station No.:

Date/Time Collected: Sampler's Name:

04/06/2009 10:50 **GEOFF KLEIN**

County:

ROANE - 73

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/06/2009 12:40

Received By:

L Barrociere

pH: Chlorine, residual:

Field Determinations

Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total							
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	DATE	
Total Alkalinity	72	mg/L	3.8	10	P Leathers	4/7/2009	

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	59	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

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TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein **TDEC-DWS** 200 East Race St Knoxville, TN 37763

N00004362 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004362001

Project Name:

Sample Description: KINGSTON WTP

Sampler Project Name:

Project Site No.:

RAW

Station No.:

Date/Time Collected:

04/06/2009 10:05

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-DWS 327.39-12

Billing Code: Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/06/2009 12:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals	MEI					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/7/2009
Barium	22	μg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.19J	μg/L	0.04	1	M Pattanayek	4/7/2009
Lead	0.17J	μg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	31	μg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	μg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury	ME					
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362002

Project Name:

Sample Description: KINGSTON WTP

Sampler Project Name:

Project Site No.: Station No.:

FINISH

Date/Time Collected:

04/06/2009 10:10 **GEOFF KLEIN**

Sampler's Name: County:

Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

Date/Time Received:

TDEC-DWS TDEC-DWS

Priority Date:

04/06/2009 12:40

Received By:

L Barrociere

TEST: Digestion Metals METHOD: EPA 200.2

UNITS MDL MQL ANALYZED BY: DATE **RESULT** ANALYTE 04/07/2009 A Bass 4/7/2009 **Digestion Metals**

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: ICP-MS	MET	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/7/2009
Barium	19	μg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.11J	μg/L	0.04	1	M Pattanayek	4/7/2009
Lead	U	μg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	Ŭ	μg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	1. 7 J	μg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	μg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	µg/L	0.13	0.2	A Wilson	4/7/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name:

Project Site No.: Station No.:

RAW

Date/Time Collected: Sampler's Name:

04/06/2009 10:45 **GEOFF KLEIN**

County:

ROANE - 73

Sample Matrix: EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12 TDEC-DWS

Send Report To: Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received: 04/06/2009 12:40

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL MQ		MQL ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS	ME ⁻					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	0.99J	μg/L	0.93	5	M Pattanayek	4/7/2009
Barium	28	μg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.20J	μg/L	0.04	1	M Pattanayek	4/7/2009
Lead	0.40J	μg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	28	μg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	Ü	μg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	μg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U	μg/L	0.13	0.2	A Wilson	4/7/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004362004

Project Name:

Sample Description: **ROCKWOOD WTP**

Sampler Project Name:

Project Site No.:

FINISH

Station No.:

Date/Time Collected:

04/06/2009 10:50 **GEOFF KLEIN**

Sampler's Name: County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

04/06/2009 12:40

Received By:

L Barrociere

pH: Chlorine, residual:

Field Determinations

Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS	ME	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	4/7/2009
Barium	26	μg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.09J	μg/L	0.04	1	M Pattanayek	4/7/2009
Lead	U	μg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	2.2J	μg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	14	μg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit MQL - Method Quantitation Limit